

Planned Analyses for: Novelty, Conformity and Trust in Vaccines

March 1, 2021

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1. Trust in COVID-19 vaccines across 9 countries

The responses to the following four questions are of key interest:

*A3. How much do you think the government should subsidize the conventional COVID-19 vaccine?
[100%, 75%, 50%, 25%, 0%]*

A4. If the conventional COVID-19 vaccine were provided to you for free, how likely are you to accept the vaccination? [Likert scale 1 = Very unlikely, 5 = Very likely]

*A5. Suppose the conventional COVID-19 vaccine is endorsed by your Government, free, but **no one** in your country has received the vaccine. How likely would you be willing to be vaccinated with this new vaccine? [Likert scale 1 = Very unlikely, 5 = Very likely]*

*A6. Suppose the conventional/RNA COVID-19 vaccine is endorsed by your Government, free, but **no one** in your country has received the vaccine. How likely would you recommend your loved ones to be vaccinated with this new vaccine? [Likert scale 1 = Very unlikely, 5 = Very likely]*

Note: This is a 2x5 between-subjects design. The two varying dimensions are vaccine technology (conventional vs. RNA) and adoption rate in the country (0%, 20%, 40%, 60%, 80%).

For questions A4-A6, the primary outcome variable of interest is the proportion of people who respond, “Very likely”. Secondary outcome variables of interest are the proportion of people who respond either “Very likely” or “Somewhat likely”; those who respond either “Somewhat unlikely” or “Very unlikely”; and those who respond “Very unlikely”.

We plan to examine the differences in outcome variables across countries (USA, Brazil, Mexico, China, India, Indonesia, Russia, Germany, and the UK). We will conduct two-sample proportion test to test if the difference in proportions between two countries are statistically significant. We will conduct Kolmogorov-Smirnov test to test if the distributions of responses between two countries are statistically significant.

We will plot the average responses to the above questions in two ways. First, we will plot simple bar charts, where the nine countries are displayed on the x-axis, and the outcome variables on the y-axis, along with 95% confidence intervals. Second, we will draw a heatmap of the globe, with colors corresponding to the average responses from each country (higher color intensity corresponds to higher willingness to receive vaccine).

Finally, we will normalize the average responses to the four COVID-19 questions above by the country's attitude towards vaccines in general. We will create an index of country's general attitude towards vaccines by averaging the responses to the following three questions in the survey:

A1. Do you agree, disagree, or neither agree nor disagree with the following statement? (If agree) Do you strongly or somewhat agree? (If disagree) Do you strongly or somewhat disagree?

A1-1. Vaccines are important for children to have. [Likert scale 1 = Strongly disagree, 5 = Strongly agree]

A1-2. Vaccines are safe. [Likert scale 1 = Strongly disagree, 5 = Strongly agree]

A1-3. Vaccines are effective. [Likert scale 1 = Strongly disagree, 5 = Strongly agree]

The index will range from 1 to 5. The normalization will be done by dividing the average responses to question A3 (A4, A5, A6) by the index.

We will conduct two-sample *t*-test to test if the differences in normalized measures of trust in COVID-19 vaccines across countries are statistically significant. We will plot the normalized measures using bar charts and heatmaps.

2. Comparison of attitudes towards conventional vs. RNA vaccines for COVID-19

50% of survey subjects will be asked about their attitudes towards conventional COVID-19 vaccines (questions A3 – A6), and the other 50% will be asked about their attitudes towards RNA COVID-19 vaccines. For each country, we will conduct two-sample proportion test to test if there are significant differences in attitudes towards conventional vs. RNA COVID-19 vaccines.

3. Relationship between trust in COVID-19 vaccines and the adoption rate in the country

We will examine if the willingness to receive new COVID-19 vaccine (question A6) is affected by the adoption rate of the new vaccine in the country. We will plot a graph, where the adoption rates are displayed on the x -axis, and the willingness to receive the new vaccine on the y -axis. There will be two lines: the first line will show the plot for conventional vaccines, and the second line for RNA vaccines.

We will estimate regression models to test if the slope is positive (i.e., the willingness to receive the vaccine increases with the adoption rate in the country); whether the slope for RNA vaccine is steeper than that for conventional vaccines; and to identify points at which the slope is steepest.